

## Darlington County Early Action Plan for the 8-Hour Ozone Standard

### **Background**

In 1997, the Environmental Protection Agency (EPA) revised the National Ambient Air Quality Standard (NAAQS) for Ozone from a one-hour standard to an 8-hour standard. This was done to reflect the latest understanding of the effects of ozone exposure and provide public health protection with adequate margin of safety. EPA will be designating areas as attainment (meeting the standard) or non-attainment (not meeting the standard) in April of 2004. This designation will be based on the most recent three years of monitoring data (i.e., 2001, 2002, 2003). The Department of Health and Environmental Control (DHEC) has an intensive monitoring network covering the state and routinely monitors for ozone during the months of April through October. This time period is often referred to as the “Ozone Season.” If an area is designated non-attainment, the Clean Air Act (CAA) requires states to revise their State Implementation Plan (SIP) outlining how the area will return to attainment within a certain time period. If EPA designates areas in South Carolina as non-attainment in April of 2004, a revision to the South Carolina SIP will be due no later than 2007. Additionally, once an area is designated as non-attainment, the CAA has specific requirements that must be implemented. These requirements affect industry, economic development, and transportation. One requirement, Non-attainment New Source Review sets out the level of emissions reductions required for new and modified industrial facilities. Another requirement of non-attainment areas is to coordinate local transportation and air quality planning to ensure that transportation plans, programs and projects are consistent with air quality goals. According to the CAA, transportation plans, programs, and projects cannot create new violations of the Federal air quality standards; increase the frequency or severity of existing violations of the standard; or, delay attainment of standards.

The above approach is commonly referred to as the “traditional” approach. While safeguards for areas to return to attainment are included, certain prescriptive requirements may not be appropriate for all areas designated non-attainment for the 8-hour ozone standard. As a result, EPA provided an option for areas that were meeting the one-hour standard to attain the 8-hour ozone standard by December 31, 2007, and obtain cleaner air sooner than currently federally mandated. This option offers a more expeditious time frame for achieving emissions reductions, while providing “fail-safe” provisions for the area to revert to the traditional SIP process if specific milestones are not met. EPA will move forward with the designation process (attainment or non-attainment) but will defer the effective date, thus the prescriptive requirements of non-attainment designations, provided all terms and conditions of an Early Action Compact (EAC) are being met.

Forty-five counties in South Carolina elected to participate in the development of an Early Action State Implementation Plan (EAP). Participants in the EAC include the county, DHEC and the EPA. All of these parties agree to work together to implement federal, state and local emissions control measures that will allow the non-attainment areas to attain the 8-hour ozone standard earlier and therefore avoid implementing costly prescriptive measures. The EAC requires that all counties submit a local Early Action Plan to DHEC by March 31, 2004.

As air knows no boundaries, implementation of emission reduction strategies and support of federal and state rules and regulations will help to provide cleaner air sooner to citizens of South Carolina.

## **What is Ozone?**

Ozone is a gas that occurs both in the Earth's upper atmosphere and at ground level. Ozone is one of six criteria pollutants used by the EPA as an indicator of air quality. Depending on where ozone is found, it can be good or bad. Occurring naturally in the upper atmosphere, ozone acts as a shield from the sun's harmful ultraviolet rays. However, ground-level ozone is a concern during the summer months when the weather conditions are favorable for producing ozone. Ozone is formed by chemical reactions between volatile organic compounds (VOCs) and oxides of nitrogen (NO<sub>x</sub>) in the presence of sunlight. Ozone is a major ingredient of smog.

## **Ozone Health Effects**

Ozone can cause permanent damage to the respiratory system. Active children are at highest risk from ozone exposure because they often spend a large amount of time outdoors. Active adults of all ages who exercise or work outdoors have an increased risk of exposure to elevated levels of ozone. People with asthma or other respiratory diseases are particularly sensitive to ozone exposure.

## **Sources of NO<sub>x</sub> and VOCs**

NO<sub>x</sub> and VOCs come from emissions from the following sources: stationary, area, mobile and natural. Stationary sources include larger permitted industry and power plants. Area sources are small, stationary and non-transportation sources that collectively contribute to air pollution. Area sources include gas stations (emit NO<sub>x</sub>) and dry-cleaners (emit VOCs). Mobile sources are divided into two categories, on-road and off-road. The off-road mobile sources include trains, ships, boats, airplanes, lawn equipment, and construction equipment. On-road mobile sources include cars, trucks, and buses. Natural sources for VOCs are released from vegetation, mostly trees in South Carolina. Natural sources for NO<sub>x</sub> are very rare and include emissions from soil, lightning, and oceans.

## **Stakeholder Involvement**

Refer to the progress reports submitted every six months for information regarding the stakeholder process and a complete listing of the stakeholder meetings and public outreach initiatives.

## **Emission Reduction Strategies**

Through the development and implementation of this plan, local emission reduction strategies that are economically feasible and that make sense for the county will be implemented no later than April 2005. In doing so, these efforts should assist the state in achieving the 8-hour ozone standard by December 31, 2007, and maintaining the standard beyond 2012.

A number of federal control measures are in place and/or will be phased in over the next several years. These programs include the Tier II and Low Sulfur Gasoline and also the NO<sub>x</sub> SIP call. All of these programs have been developed to help areas attain air quality standards.

The state is also proposing new and/or modifications to regulations that will assist non-attainment areas. The State programs could include a regulation that would result in VOC and NOx reductions; modifications to the open burning regulations and a process to assure transportation plans, programs, and projects consider air quality goals.

Attachment 1 contains a list of emission reduction strategies that will be implemented by the county. While it may not be possible to determine emissions reductions for each of the strategies included, directionally sound strategies have been selected and the county anticipates the cumulative impact of adopting each of these strategies will assist in maintaining the standard.

## **Maintenance**

The county will continue to address strategies that will assist in long-term maintenance of the 8-hour ozone standard. DHEC will continue to provide the air quality monitoring necessary to determine attainment of the 8-hour ozone standard. Yearly, at the end of each ozone season, there will be a review and evaluation to determine the effectiveness of the strategies adopted. If necessary, additional emission reduction strategies may be adopted. Maintenance of the standard will depend upon the success of emission reduction strategies implemented as well as federal and state initiatives.

Early Action Compact Milestone - March 2004  
List of Emission Reduction Strategies Under Consideration

Darlington County

Based on stakeholder consultation and taking into consideration resource and political constraints, the following control measures under consideration can be reasonably implemented. It is anticipated these measures under consideration will assist Darlington County in achieving and/or maintaining the 8-hour ozone standard by 2007 and beyond.

Measure under consideration	Detailed description of measure	Current assessment of emission reductions	Proposed date for implementation	Geographic area and/or local government
Ozone Action Coordinator	A county staff person responsible for dissemination of ozone forecasts	<i>Not available</i>	March 5, 2003	County wide
County Ozone Committee	County Department Heads and the Ozone Action Coor. Are developing for implementation, a countywide Ozone Reduction Plan. The plan will be made available to local business and industry for possible adoption for their programs. Plan preparations will continue thru out the year in preparation for the up coming 2004 season.	Not available	April 15, 2003	County wide
Use of Bio-Diesel/ Alternative Fuels	Convert our diesel fleet to Bio-Diesel and low sulfur fuels.	<p>Current data shows we can expect a 20% decrease in emissions by using this product. We estimate by last years usage we will use 123,272 gallons of fuel in the up coming budget year.</p> <p>The alternative fuel has been in use for the last six months with no harmful effects to the vehicles. Darlington County will continue the use of the product.</p>	<p>July 1, 2003</p> <p>December 5, 2003</p>	County wide
Reduction of Idling or No-Idle Policy for county vehicles	<p>Department Heads will develop and implement interdepartmental plans to reduce or eliminate idling time on vehicle and maintenance equipment.</p> <p>The county departments are in the process of writing the policies at this time. The plan should be ready June</p>	Not available	<p>July 1, 2003</p> <p>December 5, 2003</p>	County wide

	of 2004.			
Stricter controls of Illegal/Unauthorized outdoor burning.	<p>Darlington County's Code Enforcement, Fire District, Emergency Services and Sheriff's Department will work in combination with State Agencies to develop this action.</p> <p>Information collected on this issue will be forwarded to Darlington County Council for consideration involving this issue.</p>	Not available	<p>July 1, 2003</p> <p>December 5, 2003</p>	County wide
Fleet Replacement	Darlington County's Materials Manager and Vehicle Maintenance Contractor will develop a plan to purchase replacement vehicles. Future RFP's should place priority on vehicle and equipment with the latest emission reduction standards.	Not available	July 1, 2003	County wide
Community Awareness and Education	<p>Awareness and Education will include public speaking, distribution of educational materials and increase media alerts promoting clean air.</p> <p>The Darlington County School Superintendent will be contacted and requested to encourage the teachers in this county to participate in training classes provided by the SC DHEC Air Quality Bureau, and include the information in the school curriculum.</p>	Not Available	<p><b>March 30, 2003</b>  Robbin Brock spoke at the Joint City/County meeting in Hartsville; Representatives from the town of Lamar and Society Hill, the cities of Hartsville and Darlington and the County of Darlington were present. Senator Gerald Molloy and Representative Jay Lucas were also in attendance. An ozone awareness presentation was done, followed by a lengthy discussion on the potential negative economic impact non-attainment could cause.</p> <p><b>April 14, 2003</b>  A presentation was done for Sonoco Products on Ozone Awareness.</p> <p><b>May 14, 2003</b></p>	County wide

			<p>Darlington County Ozone Steering Committee task the Emergency Services staff to produce a three-page brochure with Ozone information specific for Darlington County.</p> <p><b>August 1, 2003</b> The brochure was sent to the printers and is now available for distribution.</p> <p><b>December 3, 2003</b> The county ozone staff attended a training meeting at SC DHEC Air Quality Bureau. The new programs will be forwarded to the school district for consideration for the county school curriculum. First contact will be made around January 2, 2004.</p> <p><b>February 10, 2004</b> Presentation resented to the Hartsville Cancer Survivor Group.</p> <p><b>March 2, 2004</b> Presentation resented to the Senior Citizen Group of Pine Ridge.</p> <p>March 3, 2004 Dr. Flossie Hopkins, Director of Curriculum &amp; Instruction contacted</p>	
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Energy Conservation	Energy conservation plans will be developed that directs county departments to reduce the overall yearly energy usage by 5-10%. Our current data shows 5,932,976 kwh used, a 5% reduction will be 296,648 kwh.	Not available	<b>July 1, 2003</b>	County wide
Restrict or change the time of use of landscaping and lawn mowing equipment	County Department Heads will receive daily ozone alerts from the Ozone Action Coordinator, on days with high alerts these activities are being rescheduled.	Not available	<b>May 1, 2003</b>	County wide
Reduction in unnecessary use of on-road vehicle use and conservation of fuel.	County Department Heads will monitor vehicle and fuel usage on high alert days and decrease departmental use as much as possible.	Not available	<b>May 1, 2003</b>	County wide
Promote and encourage employees to eat in or carpool for meals during work hours.	Provide employees with facilities to eat in during working hours and flexible lunch hours to encourage carpooling for meals.	May 15, 2003 we conducted a multi-departmental survey to determine the effects of this measure. 83 out of 100 employees who were asked to take part in the survey returned the survey. We found that by providing facilities (exam. break rooms or kitchens) and flexible lunch hours 52% of the employees are eating meals in with an estimated savings of 9,900 vehicle miles traveled yearly. The average mileage for one employee was 3.14 miles per meal	<b>February 12, 2003</b>	County wide

